



Infection Control Guidelines

As health care professionals, Optometrists need to utilize appropriate precautions to prevent exposure to and/or transmission of infectious diseases. The following policy relates guidelines proposed by the Centers for Disease Control (CDC), the American Association of Optometrists (AOA), the American Academy of Optometry, and Health Canada. The Canadian Association of Optometrists will endeavor to update these Guidelines as new information becomes available, but reminds members that it is their responsibility to ensure they are aware of and follow proper practices. While considerable attention has been given to the transmission of the human immunodeficiency virus (HIV), there are numerous other pathogens, which may be routinely encountered in optometric practice.

Universal Precautions

The CDC recommends that blood and body fluid pre-cautions be consistently used for all patients. The CDC recognizes blood and certain body fluids of all patients to be potentially infectious for HIV, the hepatitis B virus and other blood borne pathogens. Universal precautions therefore apply to blood, specific body fluids, and all body fluids containing visible blood (see Table 1).

Universal precautions do not apply to tears, unless they contain visible blood. While HIV has been isolated in trace quantities in tears, the CDC recognizes tears as only a theoretical (not clinical) mode of transmission, in that the likelihood of transmission is either extremely remote or non-existent.

As medical history and examination cannot reliably identify all patients infected with HIV or other infectious diseases, universal precautions should be consistently used for all patients.

Infection Control in Optometric Practice

The Canadian Association of Optometrists (CAO) recognizes the need for the establishment of infection control guidelines to be practiced when examining all patients.

A) Handwashing - It is the responsibility of Optometrists and their staff to practice effective handwashing before and after every patient contact. Hands should be washed with soap and warm water for at least 20 seconds, rinsed well under warm running water and thoroughly dried with a fresh cloth towel or disposable paper towels. Turn off the tap using the paper towel to avoid re-contamination. Alcohol based hand rubs can be used where soap and water are unavailable.

B) Personal Protective Equipment (PPE) - For those instances where infectious material is likely or unavoidable, Optometrists should adhere to appropriate PPE. A PPE forms a barrier between you and the patient, preventing direct transmission of pathogens. Disposable gloves, and the most common example of PPE should be readily available for use by Optometrists and their staff. Gloves not only protect you from the patient but also protect the patient from



you. Always remember that wearing gloves is not a substitute for hand washing. The following are Health Canada recommendations for disposable glove use:

1. Use sterile gloves for procedures involving contact with normally sterile areas of the body. These are mainly used for surgical procedures.
2. Use examination gloves for procedures involving contact with mucous membranes and for diagnostic procedures that do not require the use of sterile gloves.
3. Both sterile and examination gloves are single use only.
4. Hands should always be washed after gloves are removed.
5. General-purpose utility gloves (neoprene, rubber and butyl) are to be used for housekeeping chores involving potential blood content, and for instrument cleaning and decontamination. Utility gloves may be decontaminated and reused as long as there is no sign of deterioration.

Other barriers might not be as obvious as gloves. A simple lab coat can act as a barrier to keep your street clothes from becoming contaminated. In the case where an Optometrist or their staff may be in close contact with a patient with a known or suspected pathogen that may be transmitted by airborne means (talking, coughing, or sneezing), masks should be used. As well if an Optometrist or a staff member is infected with a pulmonary or other disease that is transmittable via airborne means, masking is necessary to protect the patient. Surgical masks are effective barriers for large droplets released through talking, coughing or sneezing. However, Health Canada and the US CDC recommend the use of respirators for health care workers in contact with infected individuals. There are 3 types of respirator filters:

N - **N**ot resistant to oil
R - **R**esistant to oil
P - Oil **P**roof

And 3 levels of filter efficiency – 95% (N95, 99% (N99), and 99.97% (N100 or HEPA filter). Higher risk contamination and procedures require additional protection.

Protective eyewear is normally unnecessary except in cases where blood or contaminated fluids may be splashed into the eyes of the Optometrist or their staff. Either goggles or eyeglasses with side-shields may be used.

Infectious Material Spills

Patients can attend an optometric office in various states of poor health and various spills may occur, for example, as minor as the bleeding of a small cut, or as significant as vomiting. Anyone involved in the clean-up should use appropriate precautions as necessary. This may include proper gloves, masks, gowns, and disposing the contaminated materials such that no one else could come into contact with them.



C) Instruments and Equipment - Health Canada adopts Spaulding's classification system for medical instruments. The method for proper cleaning, disinfection, or sterilization of reusable instruments is based on the potential risk of infection involved in the use of that instrument (Table 2).

Medical instruments and equipment are divided into three classes (see Tables 2 and 3):

1. *Critical*- Critical items are instruments or objects that routinely penetrate the skin or mucus membranes into normally sterile areas of the body, or come into contact with recirculating body fluids. If not purchased sterile, these objects must be physically cleaned, rinsed, and sterilized before use. Sterilization can be achieved by heat (autoclave) or by chemical sterilization. Instruments must be packaged to maintain sterility.
2. *Semicritical* - These items come in contact with non-intact skin or intact mucous membranes, but do not ordinarily penetrate normally sterile areas of the body. These objects must be physically cleaned, rinsed and undergo high level disinfection before use.
3. *Noncritical* - These are items that do not ordinarily touch the patient or touch only intact skin. Depending on their use, only physical cleaning and/or low level disinfection are necessary before reuse.

The majority of ophthalmic equipment would fall into the semi-critical and noncritical categories. Most ophthalmic instruments can therefore be sterilized by heat (autoclave) or disinfected by immersion for 10 minutes in one of the following fresh solutions:

1. Hydrogen peroxide (3%)
2. a 1/10 dilution (0.5% solution) of common household bleach (sodium hypochlorite)³.
3. 70% ethanol or isopropyl alcohol, or alternatively:
4. a chemical germicide approved and labelled for use as a sterilant/disinfectant, following label instructions⁴

The device should be thoroughly rinsed in tap water and dried before reuse.

Alcohol should not be used to soak tonometer (have we previously defined what this is?) bi-prisms or gonioscopic contact lenses (and this?), since it may damage these lens surfaces over time. Hydrogen peroxide would then be the solution of choice. Alternatively, they may also be disinfected with a 70% alcohol swab, rinsed, and air dried.

D) Contact Lenses - Trial contact lenses must be properly disinfected after each patient use using one of the following CDC recommended procedures:

1. *Hard (PMMA) lenses* - can be disinfected with a 3% hydrogen peroxide solution approved for soft contact lens use. Most hard lenses may also be disinfected using the standard heat treatment regimen for soft lenses (78-80 degrees Centigrade for 10 minutes).
2. *Gas Permeable (GP) lenses*-can be disinfected using a 3% hydrogen peroxide system approved for soft contact lenses. RGP lenses should not be heat disinfected as they may warp.



3. *Soft lenses* - can be disinfected with an approved hydrogen peroxide system, or if compatible, heat disinfection (78-80 degrees centigrade for 10 minutes).

³ Note – sodium hypochlorite is best used for non-metallic instruments and surfaces. Metal instruments may be corroded with repeated exposure to sodium hypochlorite.

⁴ Note – labelling should indicate the level of disinfection achieved according to concentration, temperature and contact time.

E) Handling and Disposal of Sharp Instruments - Precaution and care should be used to prevent injury in the use and disposal of such instruments. After use, disposable syringes, needles, scalpel blades, and other sharps should be placed in a puncture-resistant container for disposal. Local regulations should be consulted for instructions regarding the proper disposal of sharps in that jurisdiction. Non-disposable sharps should be placed in puncture resistant containers for transport, cleaning and sterilization.

F) Implementation of Recommended Precautions - Health Canada recommends that employers of health care workers should ensure that employees are educated about the transmission and prevention of HIV and other infectious diseases, and the need for routine use of universal precautions for all patients. Equipment and supplies necessary to follow universal precaution guidelines must be provided. Optometrists must monitor the infection control practices in their offices to ensure the adherence to recommended guidelines.

Table 1: Body Fluids to Which Universal Precautions Apply

Body Fluid	Universal Precautions	Comments
blood or any body fluid containing visible blood seminal fluid vaginal secretions	Apply	
cerebral spinal fluid synovial fluid pleural fluid peritoneal fluid pericardial fluid amniotic fluid	Apply	Risk of transmission unknown: therefore universal precautions apply
tears nasal secretions sputum sweat vomitus urine feces	Do Not Apply	Unless they contain visible blood



Table 2: Classifications

Device	Disinfectant	Definition
Critical	Sterilant	Heat sterilization or a germicide which achieves sterilization
Semi-critical	High-level Disinfectant	A germicide that kills all microbial pathogens (except large numbers of bacterial endospores) when used according to labeling
Non-critical	Intermediate-level Disinfectant	A germicide that kills all microbial pathogens (except bacterial endospores) when used according to labeling
	Low-level Disinfectant	A germicide that kills most vegetative bacteria and lipid or medium-sized virus, when used according to labeling

Table 3: Levels of Disinfection According to Type of Microorganism

Levels	Vegetative Bacteria	Tubercle Bacillus	Spores	Fungi ¹	Lipid & medium size viruses	Nonlipid & small viruses
High	+ ²	+	+ ³	+	+	+
Intermediate	+	+	+/- ⁴	+	+	+/- ⁵
Low	+	-	-	+/-	+	-

1. Includes asexual spores but not necessarily chlamydo spores or sexual spores
2. Plus sign indicates that a killing effect can be expected when the normal use concentrations of chemical disinfectants or pasteurization are properly employed. A negative sign indicates little or no killing effect
3. Only with extended exposure times are high-level disinfectant chemicals capable of actual sterilization
4. Some intermediate-level disinfectants can be expected to exhibit some sporicidal action
5. Some intermediate-level disinfectants may have limited virucidal activity



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